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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,388	10/21/2003	Vladimir Gurevich	1549	2379

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EXAMINER	
QI, ZHI QIANG	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/690,388	GUREVICH ET AL.	
	Examiner	Art Unit	
	Mike Qi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 10, 21 and 26 are objected to because of the following informalities:

Claim 10, in lines 7-8, recites ". . . a second circular X- polarizer having a first side adjacent to a second side of the first circular X-polarizer;" should be - - . . .a second circular X- polarizer having a first side adjacent to a second side of a liquid crystal display;- - ; and in lines 9-10, recites ". . . a mirror having a first side adjacent to the first side of the second circular X-polarizer;" should be - - a mirror having a first side adjacent to the first side of the liquid crystal display; - -, according to the Figs. 1-2.

Claims 21 and 26, in which the term "external surface" cannot tell which surface is the "external surface". The internal and external can be any location. One location can be internal with respect to another location, or can be external with respect to still another location. According to the Figs.1-2, for examination purpose, the "external surface" is interpreted as the upper surface of the second circular X-polarizer (20).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-11, 13-20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,462,805 B1 (Wu et al) in view of US 6,853,421 B2 (Sakamoto et al) and US 6,891,584 B1 (Kashima).

Regarding claims 1, 8, 10, 18, 20 and 26, Wu discloses (col.6, line 57 – col.7, line 54; Figs.3A,3B) that a liquid crystal display comprising:

- back light (light source 350 and mirror 360) on a bottom surface of the display device for generating light and transmitting light;
- liquid crystal display (320) having a lower side adjacent to a upper side of the back light (350, 360);
- transflective mirror (340) (two-way mirror) is positioned on the outer surface of the rear substrate (310-B) (out surface of the LCD), i.e., having a upper side adjacent to a lower side of the liquid crystal display;
- circular polarizer (330B) (first circular polarizer) having lower side adjacent to a upper side of the circular polarizer (330B);
- circular polarizer (330-A) (second circular polarizer) having a lower side adjacent to the lower side of the liquid crystal display; and the circular polarizer having the function to absorb the reflected external incident light and transmitted light, and that is the property of the circular polarizer.

Wu does not explicitly disclose a first circular X-polarizer and a second circular X-polarizer.

Sakamoto discloses (col.8, line 59 – col.9, line 44; Fig.2) that polarizing plate (19a) (linear-horizontal-polarizer) and phase difference plate (λ/4 plate) (20a) on the

lower side which functions as the first circular X-polarizer; and the polarizing plate (19b) (linear-horizontal-polarizer) and phase difference plate (λ/4 plate) (20b) on the upper side which functions as the second circular X-polarizer.

Further, Kashima discloses (col.32, lines 13-22) that linear polarization layer with a λ/4 phase-shifting layer (a combination of linear polarizer and λ/4 plate) would result in an improvement in the efficiency of light utilization, and without a great reduction in contrast caused by external light, that would be the motivation.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the circular polarizer of Wu with the combination of the linear X-polarizer and the λ/4 plate as taught by Sakamoto and Kashima, and being motivated for improving the light utilization efficiency, since the linear X-polarizer with the λ/4 plate would convert the light horizontal component into circular polarized light, and the circular polarized light having more efficiency of light utilization and without a great reduction in contrast caused by external light.

Regarding claims 3 and 13, Wu discloses (col.4, lines 36-39) that the device is a transflective display.

Regarding claims 4-5, 14-15, Wu discloses (col.4, lines 36-39) that the device is a reflective display using a front-lit (front light).

Regarding claim 11, Wu discloses (Figs.3A,3B) that using a liquid crystal display (310-A, 320, 310-B) between the two circular polarizers (330-A, 330-B) generating images.

Regarding claims 6-7, 9, 16-17 and 19, Wu, Sakamoto and Kashima teach the

invention set forth above. Although Wu, Sakamoto and Kashima explicitly lack the first and second polarizer arranged on the outer surface and quarter-wave plate on the inner surface lower surface.

Sakamoto further discloses (col.8, line 59 – col.9, line 44; Fig.2) that a liquid crystal display arranged the polarization plate (19b) and quarter-wave plate (20b) on the upper side (as the second circular polarizer), and the quarter-wave plate (20a) and the polarization plate (19a) on the lower side (as the first circular polarizer), so that the liquid crystal display is set to quarter-wave retardation. Sakamoto indicates (col.9, lines 2-14) that linear-polarized (horizontal) light passing through the polarizing plate (19b) is transformed into circular-polarized light, and this circular-polarized light is transformed by the quarter-wave plate (20b) into linear-polarized (horizontal) light and then goes out of the polarized plate (19b) having the horizontal optical axis, thus giving white display (to provide normal-white state of reflection region), and the liquid crystal display is set to quarter-wave retardation. Sakamoto indicates (col.9, lines 28 – 44) that in order to cancel (compensate) for an influence by the upper side quarter-wave plate (20b), the lower quarter-wave plate (20a) is arranged, thus providing black display with a voltage applied.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Wu with arranging linear polarizer and quarter-wave plate forming the circular polarizer and using quarter-wave retardation as taught by Sakamoto, and being motivated for achieving normal-white display and black display with voltage applied using circular polarization.

Since in order to provide a normal-white display and black display with voltage applied using circular polarization, the skilled in the art would use linear polarizer and quarter-wave plate to obtain the circular polarization.

4. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Sakamoto and Kashima as applied to claims 1, 3-11, 13-20 and 26 above, and further in view of US 6,738,117 B2 (Minakuchi).

Regarding claims 2 and 12, Wu, Sakamoto and Kashima teach the invention set forth above. Wu, Sakamoto and Kashima lack that using touch pad between the second (upper) circular polarizer and liquid crystal display.

Minakuchi discloses (col.6, lines 58 – 64; Fig.8) that using touch panel (4) as a transparent protection plate. Minakuchi indicates (col.1, lines 40-41) that a polarizing plate and a quarter-wave plate would obtain a circular polarizing plate, so that the polarizing plate (2) and quarter-wave plate (1) would form a circular polarizer. Therefore, the touch panel (4) is arranged between the circular polarizer and the liquid crystal display (20). Minakuchi indicates (col.1, line 66 – col.2, line 2) that such protection plate (using touch panel as a transparent protection plate) improves the brightness, visibility and viewing angle characteristic of the display.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Wu, Sakamoto and Kashima with a touch pad between the circular polarizer and the liquid crystal display as taught by Minakuch, and being motivated for achieving the improvement of the brightness, visibility and viewing angle characteristic of the display and protecting the viewing

screen (see col.1, line 66-col.2, line 2). Since the combination of the touch panel with circular polarizing plate would improve coloring of a displayed view in an oblique direction (see col.2, lines 4-8).

5. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Sakamoto and Kashima as applied to claims 1, 3-11, 13-20 and 26 above, and further in view of US 6,642,977 B2 (Kotchick et al).

Regarding claim 21-23, Wu, Sakamoto and Kashima teach the invention set forth above. Wu, Sakamoto and Kashima lack that the display device is used in a computing device having a processor processing data, such as a mobile computing device having wireless communication arrangement.

Kotchick discloses (col. 18, lines 6-33;Fig.9-10) that using computer system having processing unit (CPU) processing data, such as using phone to collect data, and through wireless connection being connected to a computer network, and that the liquid crystal display used in the computing device would only given weight as an intended use as any display can be used in that computing device, and that would have been at least obvious.

6. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Sakamoto, Kashima and Kotchick as applied to claims 1, 3-11, 13-20, 26 and 21-23 above, and further in view of US 5,548,108 (Moldskred et al).

Regarding claims 24-25, Wu, Sakamoto, Kashima and Kotchick teach the invention set forth above. Wu, Sakamoto, Kashima and Kotchick lack a data capturing arrangement obtaining data, such as using barcode reader or RFID reader.

Moldskred discloses (col.1, lines 20-53) that it is known in the art to use a non-contact scanning device to cause a beam of light to scan across an area containing a barcode, and such scanning symbols would decode and store data fast where a large number of symbols are read within a short period of time, and that is used in the known market.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Wu, Sakamoto, Kashima and Kotchick with data capturing arrangement obtaining data, such as using barcode reader or RFID reader as taught by Moldskred , and being motivated claimed for achieving a large number of symbols are read within a short period of time. Since such scanning to store date would be performed within a short period of time.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi
July 27, 2005

DUNG T. NGUYEN
PRIMARY EXAMINER